Getting Technical Routes into Engineering and Technology
Setting the Scene – What’s the Challenge?

Sector employs approximately 240,000 workers

Nearly 50,000 rail industry employees are expected to retire by 2030

Digital modernisation means that 80% of the industry will require training over the next two decades

Since 2016, the proportion of under 25-year-olds in the rail industry has halved from 10% to 5% of the workforce.
UK Rail Workforce demographics

Sector employs approximately 240,000 workers

- 42.6% of the workforce are employed in Capital Projects and would generally exist in Contractors, Consultants, Labour only suppliers as well as Network Rail enhancements
- 36.6% of the workforce are employed in Operations, covering both Infrastructure operations (Signalling and Control) as well as Train Operations (Driving, on board, stations)
- 11.1% of the workforce are employed in maintenance – both Infrastructure and Traction & Rolling stock
- 9.8% of the workforce are employed in Corporate Services – covers Finance, HR, IT etc
UK Rail Workforce demographics

Predicted replacement demand

• At the predicted retirement age of 62, 50,000 are expected to reach the age of 65 by 2030 – 89% male and 11% female

• From a work type perspective, over ¾ of that retirement will be across our Capital Projects and Operations areas.

• Of the job roles of those predicted to retire, the following are the most prevalent:
  • Technician (L3) – 6,500
  • Driver (L3) – 3,600
  • Customer Service – 2,800
  • Engineer (L6) – 2,000

Predicted additional demand

• In addition to those expected to retire at 65, there is additional demand generated through higher levels of capital investment with projects such as HS2, TRU, East West Rail and schemes from the IRP.

• This will create gaps in the projects workforce between 2025 and 2029, with the maximum shortage occurring in 2026 of around 10,000 workers.

• The shortages occur in Signalling & Telecoms, Civils and Structures, Traction & Rolling Stock, Electrification and Plant and Systems Engineering

• The most predominant job role shortages are in the following occupations:
  • Technician (L3)
  • Engineer (L6)
  • Supervisor
  • Project Manager
  • Operative (L3)
UK Rail Workforce demographics

Total demand: 32,000 industry wide over 3 years

- **STEM Subjects taken per annum**
  - GCSE – 725,000
  - A Levels – 300,000
  - Degrees – 175,000

- **Industry requires...**
  - Level 2 = 0.3% pa
  - Level 3 = 2% pa
  - Level 6 = 1% pa
## UK Rail Workforce – The Problem Statements

<table>
<thead>
<tr>
<th>Problem</th>
<th>Analysis</th>
<th>Mitigation</th>
<th>Impact</th>
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<tbody>
<tr>
<td><strong>Skills shortages in key disciplines</strong></td>
<td>Supply chain won’t invest in skills to the right level. Delivering less than half of the new entrants we need (at various skills levels)</td>
<td>Systematic delivery of new entrant and upskilling programme for the whole industry 5,000 candidates over 3 years</td>
<td>Wage inflation halved</td>
</tr>
<tr>
<td><strong>Insufficient management capability e.g. digital, commercial, finance</strong></td>
<td>Major barrier to modernisation, innovation and productivity</td>
<td>Major programme of supervisor and middle manager training 24,000 managers 15,000 supervisors – only 20% trained – we will take it to 50% Connected leaders</td>
<td>Managers are better able to deliver. Productivity improved by 3%</td>
</tr>
<tr>
<td><strong>Rail less attractive to young people</strong></td>
<td>Only 3/10 think of a career in rail due to inaccurate perceptions</td>
<td>Digital and other marketing, railway 200, influencing and schools (teachers and curriculum) Routes into rail</td>
<td>Double the number of young people pursue relevant courses</td>
</tr>
<tr>
<td><strong>Diversity and social value lower than they should be</strong></td>
<td>Evidence shows that outreach and a joined up pipeline works</td>
<td>Physical outreach programme Pre-apprenticeship/traineeship programme Work experience programme</td>
<td>20% of new recruits come from a disadvantaged background. At least 30% are female. Increased BAME representation in engineering disciplines</td>
</tr>
<tr>
<td><strong>Modernisation hindered by narrow skill sets</strong></td>
<td>Rail skills sets at both technician and manager level are too narrow. We need staff to have a broader skill set to cope with new technologies, one p&amp;l, and integration of track and train operational thinking</td>
<td>Short length training programmes to multi skill existing staff and teams. New lattice of competence to broaden and develop staff and encourage them to invest in their own development Affects 40,000 Technicians and 24,000 Managers</td>
<td>3% to 7% improvement in productivity</td>
</tr>
<tr>
<td><strong>Training market failure</strong></td>
<td>Not enough planning to confirm demand to training providers. Insufficient investment in training from industry. A skills shortage in the training market. Not enough use of technology in training to access to training.</td>
<td>Improve workforce planning. Create a network to inform and update training providers on need. Business cases to improve investment from industry in training.</td>
<td>Not being able to train people either on time or in sufficient numbers will limit our ability to meet productivity targets and cause overruns</td>
</tr>
</tbody>
</table>
T-Levels – A new, credible solution?
WHAT ARE T LEVELS?

- T Levels are two-year Level 3 qualifications open to 16- to 19-year-olds.
- Designed with employers, each T Level is equivalent to 3 A levels and helps young people develop the knowledge, attitude and practical skills to progress into skilled employment, an apprenticeship or further study.
- T Levels combine classroom theory, practical learning and substantial industry placements (45 days) to make sure students have real experience of the workplace.
- T Level courses have been developed with employers so the content meets the needs of industry and prepares students for work.
WHAT WOULD BE A SUITABLE T LEVEL OFFERING FOR RAIL?

TWO ROUTES
1. DIGITAL
2. ENGINEERING

DIGITAL ROUTE:
- Digital Support Services
- Digital Business Services
- Digital Production, Design and Development

ENGINEERING ROUTE:
- Design and Development for Engineering and Manufacturing
- Engineering, Manufacturing, Processing and Control
- Maintenance, Installation and Repair for Engineering and Manufacturing
HOW DOES THE INDUSTRY PLACEMENT WORK?

- Work placements are arranged to fit the needs of the employer i.e., they can be delivered in one block or several blocks.

- Their delivery can vary according to the type of T Level e.g., work placements on the digital route could be provided in one block, and placements on the engineering route could run over several weeks.

Resources:
- Department for Education guidance
- Information Agreement example
WHAT IS THE EMPLOYER’S ROLE?

- Responsibility for the individual’s health and safety in the workplace.
- Undertaking of the necessary risk assessments.
- Provision of PPE.
- Nomination of a suitable colleague to act as the student’s designated manager.
- Placements of no more than 40 hours per week, and no more than 8 hours per day exclusive of breaks.
- Obtaining prior consent if the student will be working early morning and evening shifts.
- Notifying the college if a student does not attend their placement.
- Fulfilment of Safeguarding, Prevent and child protection requirements.
- Ensuring any employees who are disqualified from working with children will not have direct contact with students on industry placement.
WHAT ARE THE BENEFITS?

- Attract motivated young people to your business, bringing in imaginative and new ideas
- Improve the recruitment pipeline for your business
- Address local and national skills gaps by helping young people develop the skills your industry needs
- Develop existing staff’s mentoring and management skills
- Play an important role in the local community
- Build partnerships with local training and education providers
- Save recruitment costs by providing the opportunity to see what the young person can offer, on a no obligation employment basis
- Build a more diverse and creative workforce
T Levels tie neatly with occupational standards

- Progression into accelerated apprenticeships at Level 3 – with progression clearly mapped to Level 6 degree apprenticeships
- Progression into Higher Technical Qualifications (HTQs)
- Progression to University – either direct, or via a Foundation Year to a Russell Group University
In May 2023, NR’s Skills, Capability & Development team started engaging with T-Level College providers and support organisations such as SDN.

Later that month, we began engaging with our own Regional HR to understand possible interest in taking on and hosting placements.

Our North West & Central Region and Manchester College were identified to partner for inaugural placement in Feb 2024.

Through these discussions, we identified Engineering T-Levels as being the most suitable for our long-term workforce needs and therefore prioritised these colleges and courses.

In December 2023, 6 prospective students were met with by NR hiring team, with 4 being selected to start in Feb ‘24.

Elsewhere; Derby, Birmingham, Exeter, Sheffield, Leeds, Birmingham and Liverpool all provide future locations for placements.

Next steps - NW&C Regional HR and Hiring team to work alongside Group HR to deliver new T-Level Placement and help define future process and guidance for wider roll-out.
T LEVEL SUPPORT AND RESOURCES
5th February 2024
Skills for Life: it all starts with skills

Whether you’re growing your business, changing your career or just starting out, it all starts with skills.

Start exploring your next steps

Today’s the day to start exploring skills and careers information. You can look at your qualification and training options or get career ideas that would suit you.
GETTING STARTED

What are T Levels?

What are Industry Placements?

How can they work for you?

Hear from others:
- Employers
- Students
- Providers
# LIVE EVENTS

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<td>Webinar</td>
<td>Industry placements for small and medium sized businesses – how can they contribute to your workforce and what practical steps can you take?</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; February</td>
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<tr>
<td>Webinar</td>
<td>Industry Placements – Upskilling tomorrow’s charitable workforce</td>
<td>8&lt;sup&gt;th&lt;/sup&gt; February</td>
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<tr>
<td>Webinar</td>
<td>Building Sustainable T Level Placement Programmes – What are the issues for large employers and how can they be tackled?</td>
<td>21&lt;sup&gt;st&lt;/sup&gt; February</td>
</tr>
<tr>
<td>Webinar</td>
<td>Industry Placements within the engineering and manufacturing sector: how can they work in your organisation?</td>
<td>27&lt;sup&gt;th&lt;/sup&gt; March</td>
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<tr>
<td>Face-to-face</td>
<td>North-West Regional Conference</td>
<td>30&lt;sup&gt;th&lt;/sup&gt; May</td>
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Links to webinar recordings available [here](#) on GOV.UK
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<td>Webinar</td>
<td>Planning to support students development objectives / Identifying suitable projects/tasks in different roles</td>
<td>June</td>
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<tr>
<td>Face-to-face</td>
<td>London Regional Conference</td>
<td>27th June</td>
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<tr>
<td>Webinar</td>
<td>Making the business case for T Levels / Role of the T Level coordinator</td>
<td>July</td>
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<tr>
<td>Webinar</td>
<td>Compliance / Legal responsibilities / safeguarding</td>
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INDIVIDUALLY TAILORED ASSISTANCE
PLAN YOUR PLACEMENT

Downloadable resources

The case for industry placements

Planning the content of an industry placement

Are we ready to offer industry placements? Checklist and action plan

Final preparations checklist
CASE STUDIES

Business and Administration
• BPM Contracting Services Ltd
• Greater Manchester Combined Authority (GMCA)
• Pall-Ex (UK) Ltd

Catering
• Sandhills Court

Construction and the Built Environment
• GMI Construction Group
• BAM Construction Midland Limited
• Eric Wright Group
• Low Carbon Construction
• Willmott Dixon
CASE STUDIES

Digital
• Hampshire and Isle of Wight Constabulary

Education and Early Years
• White Road Preschool

Engineering and Manufacturing
• Pendragon
• MedTec Design Services
• Centre for Process Innovation
• InTandem

Health and Science
• Hull City Council
• Climax Molybdenum
• Industry Placement Case Study: The Sainsbury Laboratory Norwich
• University Hospitals of Morecambe Bay NHS Trust
• Frimley Health NHS Foundation Trust
DELIVERING YOUR PLACEMENT

Downloadable resources

Day 1 induction checklist

End-of-placement review with the student

End-of-placement review with the provider
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SEARCH FOR PARTNERS

Find a T Level school or college

Search for schools and colleges delivering T Levels near you. You can contact them directly to find the right industry placement student for your business.

- Looking for providers in more than one location?

**MILTON KEYNES COLLEGE**
Milton Keynes | MK6 5LP

T Levels available now:
- Construction and the Built Environment
  - Design, Surveying and Planning for Construction
  - Education and Early Years
- Engineering and Manufacturing
  - Design and Development for Engineering and Manufacturing
  - Health and Science
- Health

Get in touch:
Telephone: 01908 684444 | Visit website | Email: info@mkecollege.ac.uk

**WALTON HIGH**
Milton Keynes | MK7 7WH

T Levels available now:
- Education and Early Years
  - Education and Early Years
- Health and Science
Register an interest in T Levels and industry placements

Enter your details into our online form and we will share your interest in T Levels and industry placements with registered T Level schools and colleges for 12 weeks.

If a provider would like to speak to you about an industry placement or other T Level opportunity, they can contact you using the details you provide.

The form takes about 5 minutes to complete.

This form is for employers who may be interested in offering industry placements at up to 6 locations. If you are interested in offering placements at more than 6 locations, contact us.

Register an interest

https://employers.tlevels.gov.uk/
Why am I here?

- Over 17 years' experience in Civil Engineering.
- Became an Engineer through a part-time educational route.
- Passionate about Engineering and encouraging the next generation of Engineers.
T-Levels fill a gap

1. **STEM** – Science Technology Engineering and Maths events are run for ages 5+ by Network Rail Colleagues (5 days allowance per year).

2. **Apprenticeship Scheme** – Run for several years dependent on level e.g. Level 3 or 6 apprenticeship.

3. **Year In Industry / Summer Placements** – Aimed at undergraduates. 12 month or 10 week placements.

4. **Graduate Scheme** – Once further academic studies (Degree and/or Master) are completed, they can start their Graduate journey.

Aimed at typically:

- 22+ years old
- 18-22 years old
- 18+ years old
- 5-16 years old
T-Levels fill a gap

Aimed at typically 16-18 years old

T Levels - Aimed at 16-19 year olds. They're an alternative to A levels and apprenticeships, giving young people the technical and practical skills needed to be an asset in the workplace. T Levels combine classroom learning with a substantial industry placement.
Challenges in Creating a T-Level Placement

1. Lack of T-Level Awareness
2. Internal Bureaucracy of a Large Company
3. Safety & Security
4. Level of Tasks
5. Time
6. Resources
7. Evidence
8. Benefits

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Thank you & Questions?